UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,267	02/24/2000	Woon-Yong Park	06192.0100	5968

7590 12/15/2005

McGuire Woods LLP
1750 Tysons Boulevard
Suite 1800
McLean, VA 22102

EXAMINER	
KUMAR, SRILAKSHMI K	
ART UNIT	**PAPER NUMBER**
2675	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/512,267	PARK ET AL.	
	Examiner	Art Unit	
	Srilakshmi K. Kumar	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The following action is in response to request for reconsideration filed on May 24, 2005. Claims 24-43 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 24-31 and 33-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negishi et al. (US 5,907,314) in view of Moon et al (US 6,421,039).

As to independent **claims 24 and 33**, Negishi et al disclose a liquid crystal display (Fig. 11) and a method for driving a liquid crystal display (LCD) having a first gate line block (Fig. 11, items 115) and a second gate line block (Fig. 11, items 116), the system and the method comprising the steps of;

Negishi et al disclose providing a first pixel voltage to a first pixel electrode formed in the first gate line block (col. 4, lines 38-45, col. 20, lines 34-63); providing a second pixel voltage to a second pixel electrode formed in the second gate line block (col. 4, lines 38-45, col. 20, lines 34-63); the first pixel electrode and the second pixel electrode being arranged on the same column (Fig. 11, item Xm is the first pixel electrode, Xm+1 is the second pixel electrode); providing a common voltage to a common electrode; Negishi et al do not disclose a common voltage to a common electrode; However, in a similar field of endeavor, Moon et al disclose an

in-plane structure liquid crystal display system (Fig. 10) comprising, a common electrode (Fig. 10, item 110) formed parallel to a data line in the same plane and connected to either the first common line (item 111) or the second common line (item 112), and providing a common voltage to a common electrode in col. 6, lines 26-58. It would have been obvious to one of ordinary skill in the art to incorporate the feature of providing a common voltage to a common electrode into that of Negishi et al as shown by Moon et al as in col. 6, lines 34-37, where Moon et al disclose where the liquid crystal display is driven by an electric field that exists due to a difference in voltage between the common electrode and the pixel electrode. The common electrode of Moon et al is advantageous as is disclosed in col. 2, lines 16-22, where the viewing angle is increased, and in col. 3, lines, 8-26, where flicker and power consumption is reduced.

Negishi et al do not disclose pixel voltage. However, it is inherent that Negishi et al includes a pixel voltage as every liquid crystal display needs pixel voltage in order to function.

Negishi et al disclose providing a first data signal to a first data line formed in the first gate line block (Fig. 11, gate signals from the upper scanning drive circuit, col. 20, lines 34-63), said first data signal influencing a first voltage difference between the common voltage and the first pixel voltage stored in the first pixel electrode; Negishi et al do not disclose a first voltage difference between the common voltage and the first pixel voltage. Moon et al disclose in col. 6, lines 44-51, where a first pixel can be shown in the odd columns. Moon et al discloses in Figs. 14 and 15, the waveforms of a first voltage and a common voltage, including the voltage differences. In col. 6, lines 34-37, Moon et al disclose where in order for the LCD to function as a display device, voltage differences are needed between the common electrode and the pixel voltage. It would have been obvious to one of ordinary skill in the art of where voltages are

provided as every display requires voltage in order to function. It would have been obvious to one of ordinary skill in the art to incorporate the feature of voltage differences between the common voltage and the pixel voltage into that of Negishi et al as shown by Moon et al as in col. 6, lines 34-37, where Moon et al disclose where the liquid crystal display is driven by an electric field that exists due to a difference in voltage between the common electrode and the pixel electrode. The common electrode of Moon et al is advantageous as is disclosed in col. 2, lines 16-22, where the viewing angle is increased, and in col. 3, lines, 8-26, where flicker and power consumption is reduced.

Negishi et al disclose providing a second data signal to a second data lined formed in the second gate line block (Fig. 2, col. 4, lines 4-36), said second data signal influencing a second voltage difference between the common voltage and the second pixel voltage stored in the second pixel electrode; Negishi et al do not disclose a second data signal influencing a second voltage difference between the common voltage and the second pixel voltage. Similarly, as disclosed above, Moon et al disclose in col. 6, lines 44-51, where the second pixel can be shown in the even columns. Moon et al disclose in Figs. 14 and 15, the waveforms of a pixel voltage and a common voltage, including the voltage differences. In col. 6, lines 34-37, Moon et al disclose where in order for the LCD to function as a display device, voltage differences are needed between the common electrode and the pixel voltage. It would have been obvious to one of ordinary skill in the art of where voltages are provided as every display requires voltage in order to function. It would have been obvious to one of ordinary skill in the art to incorporate the feature of voltage differences between the common voltage and the pixel voltage into that of Negishi et al as shown by Moon et al as in col. 6, lines 34-37, where Moon et al disclose where

the liquid crystal display is driven by an electric field that exists due to a difference in voltage between the common electrode and the pixel electrode. The common electrode of Moon et al is advantageous as is disclosed in col. 2, lines 16-22, where the viewing angle is increased, and in col. 3, lines, 8-26, where flicker and power consumption is reduced.

Negishi et al disclose controlling the first data signal and the second data signal, based on polarities of the first pixel voltage stored in the first pixel electrode and the second pixel voltage stored in the second pixel electrode to simultaneously increase or decrease the first voltage difference and the second voltage difference. Negishi et al disclose in Fig. 16 wherein the polarities of the first and second pixels are changed. Negishi et al do not disclose the first voltage difference and the second voltage difference. Moon et al disclose in Figs. 14 and 15, the waveforms of a pixel voltage and a common voltage, including the voltage differences. In col. 6, lines 34-37, Moon et al disclose where in order for the LCD to function as a display device, voltage differences are needed between the common electrode and the pixel voltage. It would have been obvious to one of ordinary skill in the art to incorporate the feature of voltage differences between the common voltage and the pixel voltage into that of Negishi et al as shown by Moon et al as in col. 6, lines 34-37, where Moon et al disclose where the liquid crystal display is driven by an electric field that exists due to a difference in voltage between the common electrode and the pixel electrode. The common electrode of Moon et al is advantageous as is disclosed in col. 2, lines 16-22, where the viewing angle is increased, and in col. 3, lines, 8-26, where flicker and power consumption is reduced.

As to dependent **claims 25 and 34**, limitations of claims 24 and 33, and further comprising, wherein the first pixel voltage has a first polarity with respect to the common voltage and the

second pixel voltage has a second polarity with respect to the common electrode different from the first polarity (Fig. 16, under (b), where the upper area is shown to be positive and the lower area is shown to be negative).

As to dependent **claims 26, 29, 35 and 38**, limitations of claims 25 and 34, and further comprising, wherein the step of controlling the first data signal and the second data signal comprises the step of providing the first data signal of the first polarity and the second data signal of the second polarity (Fig. 16, under (b), where the upper area is shown to be positive and the lower area is shown to be negative) to simultaneously increase the first voltage difference and the second voltage difference. Negishi et al do not disclose first and second voltage differences. Moon et al disclose in Figs. 14 and 15, the waveforms of a pixel voltage and a common voltage, including the voltage differences. In col. 6, lines 34-37, Moon et al disclose where in order for the LCD to function as a display device, voltage differences are needed between the common electrode and the pixel voltage. It would have been obvious to one of ordinary skill in the art to incorporate the feature of voltage differences between the common voltage and the pixel voltage into that of Negishi et al as shown by Moon et al as in col. 6, lines 34-37, where Moon et al disclose where the liquid crystal display is driven by an electric field that exists due to a difference in voltage between the common electrode and the pixel electrode. The common electrode of Moon et al is advantageous as is disclosed in col. 2, lines 16-22, where the viewing angle is increased, and in col. 3, lines, 8-26, where flicker and power consumption is reduced.

As to dependent **claims 27, 30, 36 and 39**, limitations of claims 25 and 34, and further comprising, wherein the step of controlling the first data signal and the second data signal

comprises the step of providing the first data signal of the first polarity and the second data signal of the second polarity to simultaneously decrease the first voltage difference and the second voltage difference. Negishi et al disclose where the first data signal is of a first polarity and the second data signal is of a second polarity in (Fig. 16, under (b), where the upper area is shown to be positive and the lower area is shown to be negative). Negishi et al do not disclose voltage differences. Moon et al disclose in Figs. 14 and 15, the waveforms of a pixel voltage and a common voltage, including the voltage differences. In col. 6, lines 34-37, Moon et al disclose where in order for the LCD to function as a display device, voltage differences are needed between the common electrode and the pixel voltage. It would have been obvious to one of ordinary skill in the art to incorporate the feature of voltage differences between the common voltage and the pixel voltage into that of Negishi et al as shown by Moon et al as in col. 6, lines 34-37, where Moon et al disclose where the liquid crystal display is driven by an electric field that exists due to a difference in voltage between the common electrode and the pixel electrode. The common electrode of Moon et al is advantageous as is disclosed in col. 2, lines 16-22, where the viewing angle is increased, and in col. 3, lines, 8-26, where flicker and power consumption is reduced.

As to dependent **claims 28 and 37**, limitations of claims 24 and 33, and further comprising, wherein the first pixel voltage has a first polarity with respect to the common voltage and the second pixel voltage has the first polarity with respect to the common voltage (Fig. 16, item (c) where first pixel has a positive polarity and the second pixel, below the first pixel has a positive polarity).

As to dependent **claims 31 and 40**, limitations of claims 24 and 33, wherein the first pixel electrode and the second electrode are adjoining each other (Fig. 11, items Xm and Xm+1).

As to dependent **claim 41**, limitations of claim 33, and further comprising, wherein a first data driver connected to the first data line for transferring the first data line thereto and a second data driver connected to the second data line for transferring the second data line thereto (Fig. 2, col. 4, lines 4-36).

3. Claims 32 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negishi et al. (US 5,907,314) in view of Moon et al (US 6,421,039) as applied to claims 24 and 33, above, and further in view of Konoue et al (JP03125187).

As to independent **claim 43**, limitations of claims 24 and 33, and further comprising, a data driver controlling the first data signal and the second data signal (Fig. 11, items 112 and 113); and a gate driver (Fig. 11, item 110) connected to the plurality of first gate lines (Fig. 11, items 115, X_1 to Xm) and the plurality of second gate lines (Fig. 11, items 116, Xm+1 to Xn) and scanning the plurality of first gate lines in a first direction and the plurality of second gate lines in a second direction different form the first direction. Negishi et al do not disclose where the gate lines are scanned in different directions. Konoue et al disclose a display device and scanning method for a display device, where in Fig. 2a and the Constitution on page 1, the screen is divided into upper and lower parts A and B, where the first scanning direction is opposite to the second scanning direction as shown by the solid arrowed lines. It would have been obvious to one of ordinary skill in the art to combine Negishi et al with that of Konoue et al as the system of Konoue et al is shown to improve the continuity of an image at the border of each block in a display area and to preclude deterioration in picture quality.

As to dependent **claims 32 and 42**, limitations of claims 24 and 33, and further comprising, wherein the LCD has more than two gate line blocks. Negishi et al do not disclose more than two gate line blocks. Konoue et al disclose in Fig. 2b, A, B and C gate line blocks. It would have been obvious to one of ordinary skill in the art to combine Negishi et al with that of Konoue et al as the system of Konoue et al is shown to improve the continuity of an image at the border of each block in a display area and to preclude deterioration in picture quality.

Response to Arguments

4. Applicant's arguments filed May 24, 2005 have been fully considered but they are not persuasive.

With respect to applicant's arguments on page 2 of the remarks, applicant argues where the cited references fail to disclose or suggest "controlling the first data signal and the second data signal based on polarities of the first pixel voltage stored in the first pixel electrode and the second pixel voltage stored in the second pixel electrode to simultaneously increase or decrease the first voltage difference and the second voltage difference." This limitation is taught by Moon et al disclose in Figs. 14 and 15, the waveforms of a pixel voltage and a common voltage, including the voltage differences. In col. 6, lines 34-37, Moon et al disclose where in order for the LCD to function as a display device, voltage differences are needed between the common electrode and the pixel voltage. It would have been obvious to one of ordinary skill in the art to incorporate the feature of voltage differences between the common voltage and the pixel voltage into that of Negishi et al as shown by Moon et al as in col. 6, lines 34-37, where Moon et al disclose where the liquid crystal display is driven by an electric field that exists due to a difference in voltage between the common electrode and the pixel electrode. The common

electrode of Moon et al is advantageous as is disclosed in col. 2, lines 16-22, where the viewing angle is increased, and in col. 3, lines, 8-26, where flicker and power consumption is reduced.

As shown by the rejection above, each limitation of the instant application is taught by the combinations of Negishi et al. and Moon et al (US 6,421,039) and Konoue et al, therefore, the rejection is maintained and made final.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srilakshmi K. Kumar whose telephone number is 571 272 7769. The examiner can normally be reached on 10:00 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571 272 3638. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Srilakshmi K. Kumar
Examiner
Art Unit 2675

SKK
December 9, 2005

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER